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MS APPEAL BRIEF - PATENTS
PATENT
4450-0148P

IN THE U.S. PATENT AND TRADEMARK OFFICE

In re application of Before the Board of Appeals

Edward KLEIN et al.

Appl. No.:	09/501,202	Group:	2665
Filed:	February 10, 2000	Examiner:	VOLPER, Thomas
Conf.:	3531		

For: SYSTEM FOR NON-DISRUPTIVE INSERTION AND REMOVAL OF NODES IN AN ATM SONET RING

REPLY BRIEF TRANSMITTAL FORM

MS APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

January 28, 2005

Sir:

Transmitted herewith is a Reply Brief on behalf of the appellants in connection with the above-identified application.

☐ The enclosed document is being transmitted via the Certificate of Mailing provisions of 37 C.F.R. § 1.8.

The Examiner's Answer was mailed on November 30, 2004.

☐ An extension of time under 37 C.F.R. § 1.136(b) to was requested on and was approved on .

☐ Please charge Deposit Account No. 02-2448 in the amount of $0.00. A triplicate copy of this sheet is attached.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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IN THE U.S. PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant:	Edward KLEIN et al.	Conf.:	3531
Appl. No.:	09/501,202	Group:	2665
Filed:	February 10, 2000	Examiner:	VOLPER, Thomas

For: SYSTEM FOR NON-DISRUPTIVE INSERTION AND REMOVAL OF NODES IN AN ATM SONET RING

REPLY BRIEF OF APPELLANT: Edward Klein et al.

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

January 28, 2005

Dear Sir:

This is a Reply to the Examiner's Answer dated November 30, 2004 provided in response to the Appeal Brief filed on behalf of the Appellant on August 17, 2004, which was filed to appeal the decision of the Examiner in the Final Office Action dated February 27, 2004 of claims 1-29.

(1) HIGGINS DOES NOT TEACH OPERATING A NODE AS A PASS TRHOUGH FOR ATM TRAFFIC AS CLAIMED

Independent claims 1 and 14 recite, in part, "operating the given node as a **pass through for ATM traffic** on other existing virtual path connections on the ring before a virtual path is established for the given node" (emphasis added). Independent claim 24 similarly recites, in part, "instruct[ing] a newly-

inserted node to operate as a pass through [for] ATM traffic via [preexisting] virtual paths until one or more new virtual paths are established for the newly-inserted node."[1] In other words, the claims require that a node operate to pass through ATM traffic, i.e., data transferred in ATM cells, for other virtual paths before a virtual path is established for the node.

A. EXAMINER ASSERTS THAT APPELLANT MISINTERPRETS HIGGINS

The Examiner asserts that Appellant has misinterpreted the phrase *to and from the inter-nodal network* in col. 4, lines 44-45 to mean that the newly added node 6c (hereafter "new node") cannot pass through packets already on the inter-nodal network from one neighbor node through the new node to another neighbor node (Exr. Ans. at page 10). The Examiner asserts that Higgins clearly discloses that the new node, once physically connected, can in fact pass through traffic already on the inter-nodal network (*id.*)

In support of this position, the Examiner cites Higgins at col. 4, lines 35-43, which states, "[a]fter the two neighbor nodes return to open mode...a final verification is performed to ascertain that the new node or nodes as well as the neighbor nodes have open ports." (*see* Exr. Ans. at 10-11). The Examiner asserts this passage indicates that the nodes neighboring the newly added nodes (hereafter "neighbor nodes") return to open mode before final verification

[1] Due to a typographical error, the relevant feature in claim 24 recites "instruct the newly-inserted node to operate as a pass through **from** ATM traffic..." (emphasis added). Appellant intended for this feature to recite "instruct the newly-inserted node to operate a pass through **for** ATM traffic..." It is respectfully submitted that, during prosecution, the Examiner interpreted this feature in claim 24 as intended by Appellant. This is evident from the final Office Action in which the Examiner applied the same grounds of rejection for claims 1, 14, and 24 (see Paper No. 6 at page 4).

(*id.* at 11). In page 11 of the Examiner's Answer, the Examiner further asserts that Higgins defines the open mode in col. 6, lines 62-65:

> In open operating mode, each of the nodes 6a through 6c receives packetized information through port A and transmits packetized information to the other nodes through port B as indicated by the solid arrows [referring to Fig. 2].

The Examiner further asserts that, in light of this passage in Higgins, the "open operating mode" is justly equated with the "pass through" operation of the present invention.

The Examiner further refers to the process of returning the neighboring nodes from loopback mode to open mode, and bringing the new node into service, as described in Higgins at col. 10, line 49 – col. 11, line 45 (Ex. Ans. at 11-12). The Examiner particularly cites col. 11, lines 18-21, which discloses that, each of the neighbor nodes receives the EXPNTK_COMPLETED message after their I/O ports are open, thereby verifying that the inter-nodal network is intact (Ex. Ans. at 11). Presumably, the Examiner cites this portion of Higgins to show that the EXPNTK_COMPLETED message traveled from one of the neighbor nodes to the other by passing through the ports of the new node.

Thus, the Examiner concludes that the new node acts as a pass through for ATM traffic before the final verification, which causes the new node to transition to RUNNING STATE. *See* Ex. Ans. at 12. The Examiner implicitly argues that transitioning of the new node is only required for allowing the new node to make its own connections. *See* Ex. Ans. at 11.

B. APPELLANT'S INTERPRETATION OF HIGGINS IS CORRECT

1. HIGGINS'S MESSAGES ARE DIFFERENT THAN PACKETS

Initially, Appellant respectfully disagrees with the Examiner's assertion that Appellant misinterpreted the phrase *to and from the inter-nodal network.* In col. 4, lines 35-47, Higgins discloses that the new node is configured to transmit and receive **packets** after acknowledgement is received. The Examiner is attempting to equate the control messages (e.g., EXPNTK_COMPLETED) disclosed in Higgins with these packets. This interpretation is not supported by the disclosure in Higgins, which consistently distinguishes the term *messages* from *packets* and *packetized information. See, e.g.*, col. 2, line 66 – col. 3, line 11; col. 3, lines 51-63; col. 4, lines 1-4 and 35-40.

Specifically, Higgins uses the term *messages* to refer to control messages (EXPNTK_COMPLETED, LOOPBK_COMPLETED, etc.) that are used to direct the nodes to perform various control functions. Such messages are either transmitted from a host to one of the nodes as Application Program Interface (API) messages from the host to a node, or transmitted from node to another via the control word 64. *See* col. 7, lines 31-39; col. 8, lines 6-20. On the other hand, Higgins uses *packetized information* to refer to traffic associated with networks, e.g., voice, data, video, and multimedia information. *See* col. 1, lines 61-65.

Furthermore, Higgins teaches that the control word 64 (which conveys the messages) is distinct from the packets 54, 58, 60. *See* col. 7, lines 31-49.

Specifically, the control word 64 is at the beginning of the frame, and the packets 54, 58, 60 follow. *Id.*

Thus, the Examiner's attempt to equate the passing of messages (e.g., EXPNTK_COMPLETED) in Higgins with the passing of packets is not supported by the teachings of Higgins.

2. HIGGINS'S MESSAGES DO NOT CONSITUTE NETWORK TRAFFIC

Furthermore, Higgins specifically distinguishes the control messages from network traffic. In col. 4, lines 1-5, Higgins states:

> ...the new node follows a sequence of instructions, triggered by certain host-issued **messages**, which causes the node to wait while the inter-nodal network, which continues to carry normal **traffic**, is configured to include the new node.

Also, Higgins discloses that the **packets** -- not the messages (control word) -- convey data. In col. 7, lines 39-49, Higgins states:

> Each packet 54, 58, 60 contains a start-of-packet (SOP) entity 66, a source address (SRC) 68, ...a destination address (DST) 70...Following these entities is a **payload** 72...An end-of-packet (EOP) entity 74 follows the payload 72.

Accordingly, the packets 54, 58, 60 of the frame contain the payload or data -- not the messages in the control word 64. Thus, it is clear that Higgins's disclosed messages, such as EXPNTK_COMPLETED, do **not** contain network traffic.

3. HIGGINS'S NEW NODE DOES NOT PASS PACKETS OR TRAFFIC

Furthermore, during the process of bringing the new node 6d into service and returning the neighbor nodes 6a and 6c to open mode, Higgins only

discloses that **messages** are passed along the inter-nodal network. *See* col. 10, line 43 – col. 11, line 45. There is simply no disclosure in Higgins that any packets, i.e., traffic, are conveyed over the network during this process. In fact, the Examiner relies on Higgins's teaching that a message (EXPNTK_COMPLETED) is received by the neighbor nodes 6a and 6c to argue that the new node 6d operates as a pass through (*see* Ex. Ans. at 11). Appellant respectfully submits that the Examiner has provided no teaching in Higgins that a packet is conveyed on the inter-nodal network from the time the neighbor nodes are switched from loopback mode to open mode, until the time the new node enters into full service, i.e., RUNNING state 116.

However, the Examiner nevertheless argues that col. 6, lines 62-65, of Higgins teaches that open mode is justly equated with "pass through" operation. Appellant respectfully submits that the Examiner misconstrues this section to mean that any node operating with open ports must be passing through packetized information. Instead, Appellant submits that the purpose of col. 6, lines 62-65, is to **distinguish** the ways in which a node's I/O ports convey packets in open operating mode and loopback operating mode. *See* col. 6, line 59 – col. 7, line 20. In other words, this section teaches that, for situations where packets are transmitted through the inter-nodal network, a node in open mode will receive the packet in I/O port A and transmit the packet from I/O port B, while a node in loopback mode will both receive and transmit the packet using port B. *See id.*; Fig. 2. This section does **not** disclose

that a node **must be** passing through such packets simply because it has open ports.

The Examiner also argues that col. 9, lines 36-42, demonstrates the urgency in Higgins of passing through traffic through the new node before final verification is performed. *See* Ex. Ans. at 11. This section of Higgins states:

> After both neighbor nodes...have simultaneously looped back their ports, the physical connection of the new node 6d into the network 12 can take place. The new node 6d must be prepared, however, for entry into an active inter-nodal network. It is desired that the new node 6d operate as if it had always been part of the network 12.

However, the Examiner's argument takes the above quoted passage out of context. Specifically, the Examiner seems to ignore the subsequent paragraph in Higgins (col. 9, lines 44-52), which states:

> Accordingly, in order to accomplish this, the new node 6d is programmed...to follow a special sequence of states **until it is in a running state** and the network is ready to include it. More specifically, FIG. 8 is a state transition diagram illustrating the states in which the new node 6d will remain while both it and the network 12 are prepared for its addition thereto. (col. 9, lines 43-52; emphasis added)

Thus, according to Higgins, the new node 6d will only be prepared to for entry into the active inter-nodal network when it is in the RUNNING state, i.e., after the sequence of Fig. 8 is completed. *Id.* This occurs only after the new node 6d has received final verification and is enabled to come into service, including **making connections** to other nodes. *See* col. 30, lines 30-45.

Accordingly, there is no teaching or suggestion in Higgins of passing any network traffic through the inter-nodal network during the process in which the new node 6d is brought into service and the neighbor nodes 6a and 6c are returned to open mode.

C. HIGGINS'S NEW NODE DOES NOT PASS THOUGH ATM TRAFFIC BEFORE ITS CONNECTIONS ARE ESTABLISHED

Hence, Appellant submits that Higgins fails to disclose that a node operates as a pass through for **traffic** before its connections are set up, as asserted by the Examiner in Paper No. 6 at page 2, second paragraph. As such, the Examiner has failed to provide a teaching in the cited art of operating a node as a pass through for ATM traffic before a virtual path is established for the node, as required by independent claims 1, 14, and 24.

(2) CHAN DOES NOT TEACH DETERMINING THAT A NODE HAS FAILED OR REMOVING THE FAILED NODE

Independent claim 12 includes the following limitations (with emphasis added):

- "determining that a **node** has **failed**,"
- "tearing down virtual circuit connections directed to or initiating from **the failed node**,"
- "tearing down virtual paths assigned to **the failed node**, and"
- "providing instructions to other nodes to update ring topology information to indicate that **the failed node is removed** from the ring"

Thus, claim 12 requires (1) specifically determining that a node has failed, and (2) removing the node, which is determined to have failed, by tearing down its associated virtual circuit (VC) connections and virtual paths (VPs).[2]

[2] As noted by the Examiner, Appellant mistakenly asserted that claim 12 recites "determining, *at a ring hub node*, that a node has failed" (See Appeal Brief at 23). The relevant portion of claim 12 actually recites "determining that a node has failed." Appellant respectfully submits that this mistake was the result of importing language from the amendment of claim 12, in the Reply Under 37 CFR 1.116 filed on May 11, 2004, which was not entered by the Examiner. Appellant respectfully submits that this mistake was inadvertent. Furthermore, it is respectfully submitted

A. CHAN DOES NOT DISTINGUISH BETWEEN NODE FAILURES AND PATH FAILURES

The Examiner argues that Chan clearly discloses the detection of a failed node, as opposed to detecting a path failure (Ex. Ans. at 14), citing col. 14, lines 55-67. The cited section of Chan discloses:

> Second, when there is a complete SONET switch module failure 1100, such as the complete failure of the DAS#4 126[3]...**All links into and out of the DAS#4 126 are treated as failed**. When the DAS#4 fails, the DAS#1's SONET_N card 950 detects 1110 the **failure** and notifies the downstream nodes on the CCW ring 162. The DAS#3 124 SONET_S card 930 also detects 1130 the **failure** and notifies 1140 the downstream nodes on the CW ring 160 (emphasis added)

However, the above quoted portion of Chan does not clearly disclose that a failed node can be detected and distinguished from the failure of one or more paths. Quite the opposite, this section of Chan discloses that when a complete node failure occurs, the situation will be treated as if **all of the ingoing and outgoing links to the node have failed**. Chan discloses that such a **failure** (not "failed node") will be communicated to other nodes downstream in each direction.

Accordingly, the above portion of Chan teaches that when a complete node failure occurs, a failure will be detected. Chan further discloses that this failure will not be distinguished from a situation where all of the incoming and outgoing paths from the node have failed (regardless of how rare this situation

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that the same arguments in the Appeal Brief in connection with claim 12 apply equally to the actual language contained therein.

[3] As pointed out by the Examiner (Ex. Ans. at 14), Chan discloses that the DAS's are referred to as SONET nodes (col. 7, lines 54-55).

would be). Thus, Chan does not teach "detecting that a node has failed" as required by claim 12.

B. CHAN DOES NOT REMOVE A NODE IN RESPONSE TO ANY DETECTED FAILURE

In support of the argument that Chan detects and removes a failed node, the Examiner argues that claims 1 and 9 claims the protection of virtual path (VP) connections by deleting a node (*see* Ex. Ans. at 14). Specifically, the Examiner argues that claim 1 recites the step of "protecting said VP connections by an Intra-Ring Communication protocol," and that dependent claim 9 recites that the protecting step of claim 1 includes "deleting one of said SONET VPR nodes from the SONET UPSR." *See* Ex. Ans. at 14.

In Chan, the protection switch for VPs includes implementation of an Intra-Ring Communication (IRC) protocol (col. 5, lines 66-67). Chan describes the IRC protocol in col. 6, lines 5-10, as follows:

> The IRC protocol includes the following functions: assigning logical sequential numbering of nodes on the ring; adding/deleting a node to/from the ring; notifying other nodes on the ring when either a SONET or an ATM failure has been detected; and notifying other line cards in the node when failure occurs.

As such, Chan teaches that the adding/deleting of a node is a **separate function** of the IRC protocol than the failure detection. Furthermore, Chan's detailed description describes the adding and deleting of nodes (in col. 8, line 56 – col. 9, line 51) as having no particular logical connection to the detecting and communicating failures (described in col. 9, line 52 – col. 10, line 27).

Specifically, Appellant respectfully submits that Chan does not teach or suggest that a detected failure results in deletion of a node.

Thus, the recitation in claim 9 that the protecting step includes "adding an additional SONET VPR node" and "deleting one of said SONET VPR nodes" (col. 17, lines 23-28) merely refers to Chan's protection includes an IRC communication protocol that has the functions of adding and deleting nodes. *See* col. 15, lines 53-53, which recites "protecting said VP connections by an Intra-Ring Communications Protocol."

However, the Examiner's argument seems to suggest that claim 9 should be interpreted as claiming that a node is deleted in response to a detected failure. Based on this logic, Chan would also disclose that **adding a node** is a suitable response to a detected failure because claim 9 recites that the "protecting step comprises at least one of adding...and deleting [a node]" (*see* col. 17, lines 23-25). Appellant submits that nothing in Chan describes how adding a node would be an appropriate response to a detected failure.

Accordingly, Chan fails to teach or suggest deleting or removing a node (by tearing down VPs and VCs, or otherwise) in response to a detected failure.

C. CHAN DOES NOT INSTRUCT OTHER NODES THAT THE FAILED NODE HAS BEEN REMOVED

The Examiner further argues that Chan teaches the claimed feature of providing instructions to other nodes to update ring topology information to

indicate that a failed node is removed, citing col. 9, lines 16-19 (*see* Ex. Ans. at 14).

In col. 9, lines 16-19, Chan states that "the updating of LUTs is accomplished so that previously configured VPs...are eliminated if destined for a deleted SONET node" However, claim 12 requires that the updated ring topology information indicate that a **failed node** is removed from a ring. As discussed above, there is simply no teaching or suggestion in Chan of either detecting a failed node, or removing a node in response to a detected failure. The above quoted portion of Chan only refers to the fact Chan's IRC protocol can be used to delete a node, in response to which the LUTs are updated.

Thus, Chan's updated LUTs do not indicate removal of a failed node is removed, as required by claim 12.

(3) CONCLUSION

For the reasons advanced above, it is respectfully submitted that all the claims in this application are allowable. Thus, favorable reconsideration and reversal of the Examiner's Final Rejection of claims 1-29 by the Honorable Board of Patent Appeals and Interferences, is respectfully requested.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Very truly yours,

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